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(54) [Name of the Invention]

Industrial Dust-Proof Mask

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(71) Patent Assignee: Hitachi Zosen Company

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[Note: Names, addresses, company names and brand names are translated in the most common manner. Japanese language does not have singular or plural words unless otherwise specified by a numeral prefix or a general form of plurality suffix.]

Description of the Invention

1. Name of the Invention (Design)

Industrial Dust-Proof Mask

2. Scope of the practically newly proposed registered claims

(1) Industrial dust-proof mask that is an industrial dust-proof mask where the glasses and the mask are connected through a breathing (air suction) tube as at the appropriate location of the glasses frame body a breathing opening is provided, which is equipped with a filter and an air suction valve, and on the other hand, on an appropriate location of the frame body of the above glasses, a breathing in and out opening that transports the breathing air of the inside of the mask to leave the mask, is provided, and the above breathing in and out opening and the front surface part of the mask are connected through a breathing tube, and in addition on the lower part of the mask an air expulsion opening is provided that is equipped with an air expulsion valve.

3. Detailed Description of the Invention (Design)

This invention is an invention about an improvement of an industrial application dust-proof mask, and especially, it is an invention about a dust-proof mask that can prevent the generation of dust on the monocular glasses that are used together with a dust-proof mask used in grinder industrial application where monocular glasses are to be worn.

Namely, it is known that, usually, in the case when the glasses part and the mask part have the same air space, through the exhaling and inhaling, fogging of the glasses part is generated, however, even if the glasses and the mask are separate bodies, through the effect of the temperature difference between the outside air and the skin temperature, fogging on the glasses part is inevitably generated, and there has been the problem that it can be said that unfavorable conditions are generated at the time of the practical industrial operation.

The present invention is an invention that has as a goal to suggest an industrial application dust-proof mask that solves the above described problems, and it is characterized by the fact that the glasses and the mask are connected through a breathing (air suction) tube as at the appropriate location of the glasses frame body a breathing opening is provided, which is equipped with a filter and an air suction valve, and on the other hand, on an appropriate location of the frame body of the above glasses, a breathing in and out opening that transports the breathing air of the inside of the mask to leave the mask, is provided, and the above breathing in and out opening and the front surface part of the mask are connected through a breathing tube, and in addition on the lower part of the mask an air expulsion opening is provided that is equipped with an air expulsion valve; and therefore, the temperature difference between the air that is inside and outside of the mask is made to be as small as possible, and the generation of fogging is prevented. Here below, examples are shown and the present invention is described in more details.

Figure 1 shows the Practical Example 1 in a state where it is being used, and Figure 2 shows an enlarged cross sectional view in the vertical direction of the same.

In the figures, (1) indicates monocular glasses (here below, simply called "glasses"), (2) represents the frame body of the glasses (1), and the above frame body (2) is such that the inner side of the glasses (1) must be air tight, and it is made of a material that has flexibility properties, and it is shaped in such a shape so that it bonds tightly to the face surface. (3) is a belt that is used for the wearing of the glasses (1).

(4) is a breathing opening that is provided on the upper part of the above described frame body (1) in order to breath and draw the outside air inside the glasses (1), and on the above breathing opening (4) the filter (5) and the breathing valve (6), are provided. Naturally, there are no limitations regarding the position of the breathing opening (4) on the upper part of the frame body (2), and the main point is that it is a good option if it is provided at a location that does not limit the viewing field of the operator and also it is a good option if it is provided at a location where the dust floating is as little as possible, and also it is preferred that it is provided so that the opening direction of the above breathing opening (4) is protected from floating dust.

(7) is a breathing in and out opening that is provided on the lower part of the frame body (2), and it is an opening in order to forward the breathing air inside the glasses (1) towards the described further below dust-proof mask (8) (here below, simply called "mask").

Namely, (8) is a mask that has a structure that is formed as an air tight space is formed between it and the face surface of the user (A), and on the front surface of the mask (B), the breathing air introduction opening (11) is provided, which is equipped with the filter (9) and the breathing air valve (10), and at the lower part position of the above mask (B) the air expulsion opening (13) is provided, which is equipped with the air expulsion valve (12), and the breathing transmission and introduction opening (7) of the glasses (1) and

the breathing introduction opening (11) of the mask (8) are connected by the flexible breathing tube (14), so they can be freely attached and detached.

Moreover, regarding the structure of the above described Practical Example, it shows an example of the case where the structure is formed so that the glasses (1) and the mask (7) can also be used correspondingly as separate units, and it is a case that satisfies the goal of the present invention described in the previous paragraphs; and it is also a good option if the structure is formed so that on the glasses (1) and the mask (8) a solidly fixed breathing tube (14) is provided, and in that case, the filter (9) and the breathing valve (10) become unnecessary. Also, according to the above described practical example, the number of the breathing tubes (14) and the diameter size have not been provided, however, depending on the industrial site environment, the season, etc., the appropriate number and the appropriate diameter size can be used and, for example, if it is in a summer season location, under conditions where fogging is easy, two breathing tubes (14) are provided on the right and the left side, or the diameter of the breathing tube (14) is made to be large.

The industrial application dust-proof mask according to the present invention with the structure as shown according to the above described example, of course, demonstrates sufficient dust-proof effect, and it maintains the inside and outside air of the glasses (1), which are present in the upper part position of the mask (8) at approximately the same temperature, and it is possible to prevent as much as possible the fogging of the glasses (1).

Namely, the air that must be sucked and drawn inside the mask (8), is first sucked and drawn inside the glasses (1) prior to entering inside the above glasses (1), and the air sucked inside the above glasses (1) passes from the breathing forwarding and introduction opening (7) through the breathing tube (14) and through the sucked air introduction opening (11) of the mask (8) it is sucked in and introduced inside the mask (8), and it is dedicated to the breathing of the operator (A), and the air that is breathed out by the operator (A) is expelled through the air expulsion opening (13). As a result from that, the air that is inside the glasses (1) is in a state as the normal air, and the temperature of the air inside and outside of the glasses (1) is maintained approximately the same temperature, and the fogging of the glasses (1) is prevented as much as possible.

Moreover, in this case, the air inside the glasses (1) passes through the filter (5) and is then sucked and drawn in, and because of that there no danger at all of dust entering in the eyes of the operator.

According to the above described explanation, in the case of the present invention it is mask where essentially, the outside air that must be sucked in and breathed passes through the filter of the mask and it is transmitted towards the inner side of the glasses and it is introduced into the mask, and after the inhaling and exhaling of the user, it is expelled from the bottom part of the mask, and because of that it has the characteristic that a filter can be provided on the breathing (suction) opening of the glasses, and there is no danger that dust would enter in the eyes of the operator, and also because of the same reason, the temperature of the air inside and outside of the glasses becomes almost the

same, and it is said that there is no generation of fogging, and it is considered that the industrial application properties are significantly improved.

Also, in the case of the present design, it is a structure where as it is shown according to the examples shown in the figures, a breathing tube is provided so that it can be easily attached and detached relative to the glasses and the mask, and also, it is a structure where a filter and a suction (breathing) valve are provided on the mask and through that it becomes also possible that the glasses and the mask can be used correspondingly separately.

4. Brief Explanation of the Figures

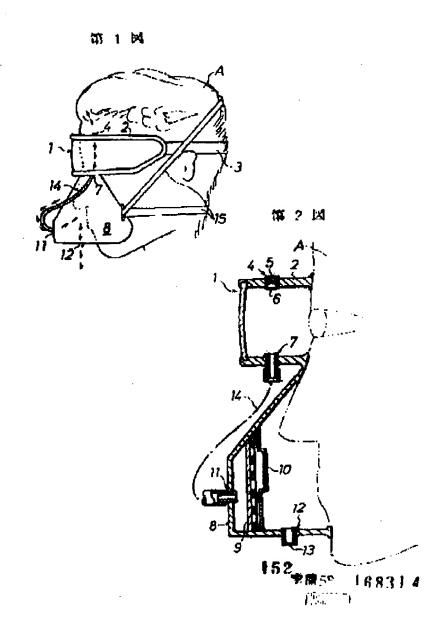
The figures show one practical example according to the present invention and Figure 1 represents a diagram of the conditions as the mask is being worn on, and Figure 2 is an enlarged vertical cross section view diagram of the same.

(1) represents the glasses, (2) represents the frame body, (4) represents the suction (breathing) opening, (5) represents the filter, (6) represents the suction valve, (7) represents the breathing forwarding/supply opening, (8) represents the mask, (11) represents the sucked air introduction opening, (12) represents the air expulsion valve, (13) represents the air expulsion opening, and (14) represents the breathing tube.

Patent Assignee: Hitachi Zosen Company

Translated by Albena Blagev ((651) 735-1461 (h), (651) 704-7946 (w))

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審查請求 未請求

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以作業用防避マスク

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程67(1982)5月4日

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河井良次

人版市西区江岸場1 17月6番14

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員)



明 叙書

し考案の名数

作楽用助島マスク

3.実用新常登録請求の範囲

(1). メガネとマスクとを吸気管で連結してなる作業用防臓マスクであつて、メガネの枠体の適宜調所にフィルター及び吸気弁を備えた要気口を付政する一方、酸メガネの枠体の適宜調所にメガネ内の吸気をマスクへと送る吸気送給口を付政して設め気送給口とマスクの前部をを吸気管で連結し、如えて、マスクの下部に抑気弁を備えた排気口を付款してるを特徴とする作業用防止マスク。 も対常の酵極を構り

この考案は、作業用防魔マスタの改良に係り、 特に一製メガネの着用を義務付けられているグラ インダ作業用防魔マスクと併用する一製メガネに 生ずる無りの発生を防止できるようにした防魔マ スクに関する。

すなわち、一般に、メガネ部とマスク部とが開 一空間を共有する場合に映吸によりメガネ 邸に墨

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りが生することは関知であるが、メガネとマスタが別体であつても、外気と体温との温度差の影響でメガネ部には必然的に曇りを生じ、実験作業時に不都合を来すという問題点があつた。

本者常は上記問題点を解決した作業用防職マスクの提供を目的としてなされ、その特徴とフィンところは、メガネの特体の適宜箇所にフィンタンと、 政策を備えた限気口を付款する一方、 政メクへと 政策を備えた限気によが、 政策を備えた課気に、 加えて、 以の事を備えた課気に、 加えて、 以の事に常時外気を吸気が進せて、 以の事に常時外気を吸引に、 が必ずる。以下、例示図面に基金、 が必ずる。以下、例示図面に基金、 が必ずる。以下、例示図面に基金、 が必ずる。

第1図は本考案の1実施例の着用状態を表示し 、第2図は同拡大機断面図を扱わす。

図中、(1)は一般メガネ(以下、単に「メガネ」 と称す)、(2)はメガネ(1)の静体で、設静体(2)は、

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メガネ(1)の内側を気密とすべく、弾力性のある材質のもので観測に密接させ得る形状に形成してある。(3)はメガネ(1)の油用ベルトを示す。

(4) は外気をメガネ(1)内に殴引すべく前配枠体(1) の上部に付款された吸気口で、酸吸気口(4)にはフイルメー(6) 及び吸気外(6) が付款されている。 勿論、吸気口(4) の位置は、枠体(2) の上部に誤るものではなく、要は、作業者の視界を創設しない位置で具つ機模の預案が可及的に少ない箇所に設定すればよく、酸吸気口(4) の明口方向も、農機の預来方向を避けるように設定することが好ましい。

(7)は特体(2)の下部に付款された吸気送給口で、これはメガネ(1)内の吸気を後述する防塵マスク(8) (以下、単に「マスク(8)」と称する)へ送給するためのものである。

するわち、(4)は使用者(A)の観断との間に気衝空 郷を形成する雑成とされたマスタで、酸マスタ(8) の前面にフィルター(9)及び吸気弁例を備えた吸気 導入口(4)が付款され、該マスタ(8)の下部位置に排 気弁例を備えた排気口側が付款されており、メガネ

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(1)少膜気送給口(7)とマスタ(8)の吸気導入口仰との 間には、可摘性のある姿気値例を着脱自在に連結 している。又、瞬はマスク(8)の着用ペルトである。 なか、上記客施併の構成は、メガネ(1)及びマス ク切がそれぞれ単体としても使用可能なように構 以した場合を例示したもので、腎臓に記した本考 帯の目的を満足させるだけの場合は、メガネ(1)と マスタ(8)とに吸気管弾を固滑した構成としておい で良く、この場合に、フイルター(8)及び盛気弁406 は不要なものとなる。又、上記実施錦では、吸気 鬱吟の本敵、傷の大きさに付言しなかつたが、こ れらは、作業現場の環境、学館等によつて適宜本 ω、帯しくは避宜役大を採用するもので、例えば 、夏梅に向つて乗り易い状況下にあれば嵌気管例 を左右2本付款するとか、暖気管料の舗を大きく なすとかするものである。

上記例示した構成の本考審作業用防율マスクは、防塵効果を充分に発揮することは勿論のこと、マスク(8)の上部位に存するメガネ(1)の内外の空気が略問温に保持し得て、メガネ(1)の繰りが可及的

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に防止できる。

すなわち、マスク(8)内に吸引されるべき空気は、マスク(8)内に入る前に虫ずメガネ(1)内に吸引される前に虫が水が、酸メガネ(1)内の吸気が聚気送路口(7)から酸気を通つてマスク(8)の吸気等入口(4)へと吸り、作業者(4)の呼吸に供いるが、作業者(4)の呼吸に供いるのであり、作業者(4)の必要気は排気口(4)から排気をおれている状態にあり、メガネ(1)の最りが、対対な(1)の最りが、対対な(1)の最近になる。たか、この変気をに関いて、メガネ(1)の最近になる。たか、この変気がに関いて、メガネ(1)の最近になる。たか、でして、メガネ(1)内の空気はアイルター(5)を通いて、メガネ(1)内の空気はアイルター(5)を通いて、メガネ(1)内の空気はアイルター(5)を通いて、メガネ(1)内の空気はアイルター(5)を通いて、

以上説明したように本考審は、本来マスクのフィルターを介して吸引すべき外気をメガネの内値へ避らせてマスクへと導き、使用者の吸引吐出後マスクの下部から排出するようにしたもので、メガネの吸気ロにフィルターが増えられていて、場境が作業者の膜に飛び込む恐れは全くなく、何よ

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りもメガネ内外の空気温度が略同一となつでメガ ネに乗りを生じないという投所を有し、作業性の 肉上に大いに客与する考案である。

又、本考率は、例示図面に示す如く吸気管をメガネ及びマスタに対し着製自在に装着する構成とし且つマスタにフィルター及び銀気弁を備えさせる構成とすることにより、メガネ、マスタがそれぞれ観別にも使用できるようになせる。

▲関面の無単な説明

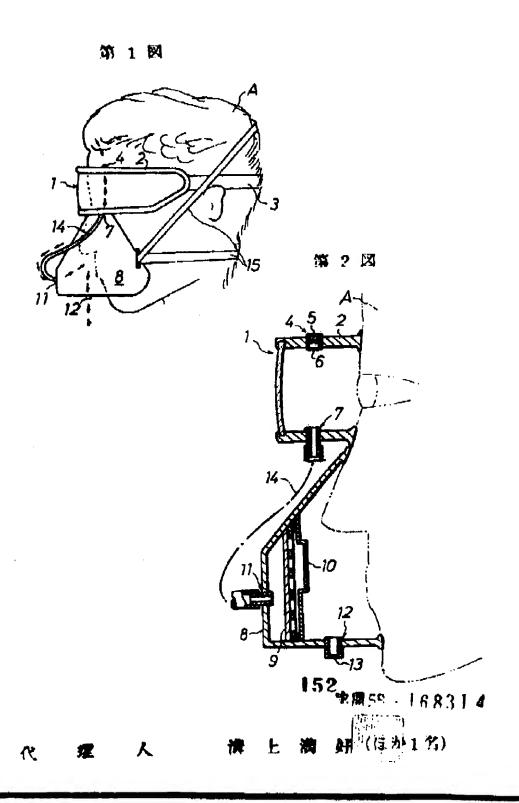
図面は本着家の1実施例を示するので、第1図は着用状態図、第2図は第1図の拡大縦断面図である。

(1) はメガネ、(2) は棒体、(4) は膨気口、(5) はフィルター、(6) は暖気弁、(7) は暖気送給口、(8) はマスク、(11) は暖気等入口、(6)は野気等、(4)は暖気等。

実用新審登録出職人 日立造船株式会社 代 理 人 溝 上 溝 類系 (ほか1名)

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